

RADIONUCLIDE

COMPLIANCE SAMPLING COLLECTION GUIDE

Kansas Public Water Supply Systems
using the
Kansas Health and Environmental Laboratories



Prepared by
Kansas Department of Health and Environment
Bureau of Water
Public Water Supply Section

January 2013

RADIONUCLIDE SAMPLING

Radionuclide monitoring is part of the Radionuclide Rule. Radionuclide monitoring requirements are stated in the Code of Federal Regulations 40 CFR 141.26, and can be found online at the Kansas Department of Health and Environment, Public Water Supply Section website <http://www.kdheks.gov/pws/index.html>.

The purpose of this document is to provide a quick guide for collecting Radiochemistry samples. A Radionuclide Rule Survival Guide is available online at the KDHE, Public Water Supply Section website <http://www.kdheks.gov/pws/index.html>, and is a more extensive guide on all facets of the Radionuclide Rule.

Compliance for radionuclides may have any one of the following monitoring schedules:

- quarterly (once each quarter of the calendar year)
- triennial (once every 3 years)
- sexennial (once every 6 years)

The Kansas Health and Environmental Laboratories (KHEL) is part of the Division of Environment under the Kansas Department of Health and Environment (KDHE).

Table 1-RAD lists the Radionuclides for which a radiochemistry sample might be analyzed and the cost involved.


Radionuclides That Might Be Included On a Radiochemistry Sample Result Report	
Radionuclide	Cost
Gross Alpha	\$35
Radium -226	\$50
Radium -228	\$50
Uranium Mass	\$70

Table 1-RAD. Radionuclides for Which
a Radiochemistry Sample Might Be Analyzed

What is in a Radiochemistry Sample Kit from KHEL?

- 5 liter jug
- Blue return shipping label
- Sample submission form

Figure 1-RAD is a picture of what is contained in a radionuclide sample kit from KHEL. The blue return shipping label is to be placed on the outside of the package when ready to ship the sample back to KHEL. The white sheet is the sample submission form that must be completed for each radionuclide sample.



KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
DIVISION OF HEALTH AND ENVIRONMENTAL LABORATORIES
Radiochemistry Laboratory
FORBES FIELD, BUILDING 740
TOPEKA, KANSAS 66620-0001

Public Water Supply Radiochemical Monitoring
08/17/2007

JANE DOE
CITY OF ANYWHERE
123 EASY STREET
ANYWHERE KS 66666

F6510
183594 - PE

Sampling Instructions: Collect the sample from the point of entry (POE) location that is listed below. Samples taken from points in the distribution system are no longer acceptable. Fill Bottle completely. Send the filled sample bottle and this completed submission form to the laboratory. Samples should be collected within 10 days of receipt of the bottle. Please ship or deliver the sample bottle immediately after collection. The Laboratory must receive the sample and preserve it within 5 days of the sample collection. If the sample collector transfers this sample to anyone else besides a courier (US Post Office, UPS, etc) he/she must fill out the chain of custody sheet below.

CHAIN OF CUSTODY

Date _____ Relinquished By _____ Received BY _____

Date _____ Relinquished By _____ Received BY _____

POE Site ID: 00197249
Collection Location: WELL 2 SE
Bottle Number: 183594
District: NC
Tests to be done: All

To be Completed by the Sample Collector

Collected By: _____

Date and Time Collected: _____

Collector's Daytime Phone Number: _____

Sample pH _____ Has sample been disinfected (e.g. Chlorine)? Yes ___ No ___

If you have questions about this sample please call
the Radiochemistry Lab at (785) 296-1620.

Received by: _____

Figure 1-RAD. What Is Included In a Radiochemistry Sample Kit

In Figure 2-RAD, a barcode label on the sample collection jug will have the system's KHEL account number and the bottle identification number. The jug holds five (5) liters of water.



Figure 2-RAD. Five Liter Radiochemistry Sampling Jug with Barcode Label

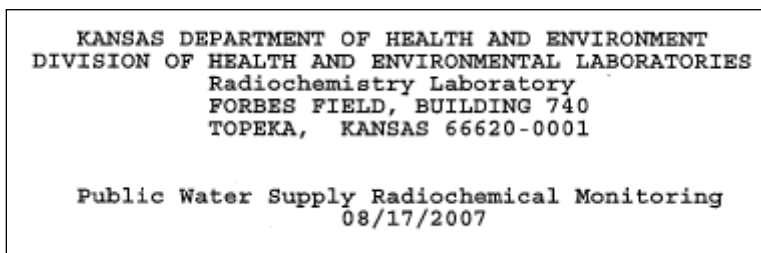
Fig. 3-RAD indicates a Radionuclide Sample Submission Form

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT DIVISION OF HEALTH AND ENVIRONMENTAL LABORATORIES Radiochemistry Laboratory FORBES FIELD, BUILDING 740 TOPEKA, KANSAS 66620-0001	
Public Water Supply Radiochemical Monitoring 08/17/2007	
<div style="border: 1px solid black; padding: 5px;">JANE DOE CITY OF ANYWHERE 123 EASY STREET ANYWHERE KS 66666</div>	<div style="text-align: right;">F6510 183594 - PE</div>
<p>Sampling Instructions: Collect the sample from the point of entry (POE) location that is listed below. Samples taken from points in the distribution system are no longer acceptable. Fill Bottle completely. Send the filled sample bottle and this completed submission form to the laboratory. Samples should be collected within 10 days of receipt of the bottle. Please ship or deliver the sample bottle immediately after collection. The Laboratory must receive the sample and preserve it within 5 days of the sample collection. If the sample collector transfers this sample to anyone else besides a courier (US Post Office, UPS, etc) he/she must fill out the chain of custody sheet below.</p>	
CHAIN OF CUSTODY	
Date _____ Relinquished By _____ Received BY _____	
Date _____ Relinquished By _____ Received BY _____	
POE Site ID: 00197249 Collection Location: WELL 2 SE Bottle Number: 183594 District: NC Tests to be done: All	
To be Completed by the Sample Collector	
Collected By: _____	
Date and Time Collected: _____	
Collector's Daytime Phone Number: _____	
Sample pH _____ Has sample been disinfected(e.g.Chlorine)? Yes ___ No ___	
If you have questions about this sample please call the Radiochemistry Lab at (785) 296-1620.	
Received by: _____	

Figure 3-RAD. Example of a Radiochemistry Sample Submission Form

THE RADIOCHEMISTRY SAMPLE SUBMISSION FORM IN DETAIL

Figure 4-RAD indicates the header of the form which tells where the kit came from, what the sample will be analyzed for, and the date it was shipped from KHEL. The address in the header is the address of KHEL and will match the address on the blue return shipping label that came with the kit.



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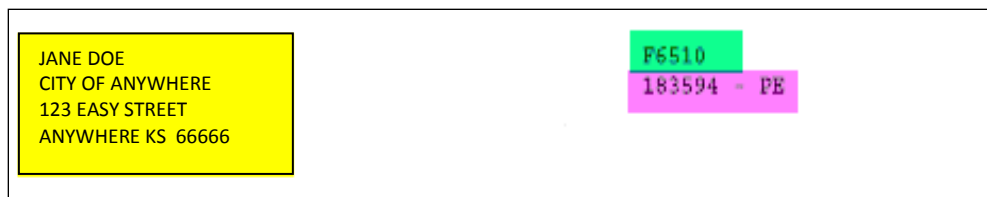
Figure 4-RAD. Header of the Sample Submission Form

Figure 5-Rad has been highlighted to point out specific areas on the form.

The part highlighted in yellow indicates the system's contact name and address information.

The part highlighted in green indicates the system's KHEL account number.

The part highlighted in pink is the identification number of the bottle that came in the kit. The bottle ID number on the jug's barcode label and on the sample submission form should always match. If they don't match, call KHEL at 785-296-1620 and notify them of the situation.



JANE DOE
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F6510
183594 - PE

Figure 5-RAD. System Address, KHEL Account Number, and Bottle ID on the Sample Submission Form

Figure 6-RAD indicates the sample collection instructions. The instructions specify to collect the sample within 10 days of receiving the sample kit. Collecting within the appointed time frame is to the system's benefit and has been coordinated with the system's compliance monitoring due date. The sample must arrive at KHEL on a weekday within five (5) days of the sample collection date. Many systems pay for additional courier services (next day or priority shipping) to ensure their sample will be delivered on time.

Sampling Instructions: Collect the sample from the point of entry (POE) location that is listed below. Samples taken from points in the distribution system are no longer acceptable. Fill Bottle completely. Send the filled sample bottle and this completed submission form to the laboratory. Samples should be collected within 10 days of receipt of the bottle. Please ship or deliver the sample bottle immediately after collection. The Laboratory must receive the sample and preserve it within 5 days of the sample collection. If the sample collector transfers this sample to anyone else besides a courier (US Post Office, UPS, etc) he/she must fill out the chain of custody sheet below.

Figure 6-RAD. Sample Collection Instructions on the Sample Submission Form

Figure 7-RAD indicates the "Chain of Custody" lines which only need to be used if the sample is passing from the sample collector to someone other than the courier service that will be delivering the sample to KHEL.

CHAIN OF CUSTODY		
Date _____	Relinquished By _____	Received BY _____
Date _____	Relinquished By _____	Received BY _____

Figure 7-RAD. Chain of Custody Section on the Sample Submission Form

Figure 8-RAD has been highlighted to point out specific areas on the form.

The part highlighted in yellow is the point-of-entry (POE) site ID number from where the sample must be collected. The POE site ID number should match a KDHE identification tag number that is physically at the site where the sample should be collected.

The part highlighted in green has often caused confusion for samplers. It is the Local Name for the collection site. In our data base, systems have the option of giving the POE site a “Local Name,” and printed on the form in this location (if anything) is whatever the system requested as the Local Name.

The part highlighted in pink is the bottle ID number. The bottle ID number on the container should match the bottle ID number on the sample submission form. If they don’t match, call KHEL at 785-296-1620 and notify them of the situation.

The part highlighted in blue contains information used by KHEL personnel.

DO NOT COLLECT RAW WATER FOR A RADIONUCLIDE COMPLIANCE MONITORING SAMPLE. Collect a finished water sample from the sample collection tap marked with the matching POE site ID tag.

POE Site ID: 00197249
Collection Location: WELL 2 SE
Bottle Number: 183594
District: NC
Tests to be done: All

Figure 8-RAD. Collection Site ID and Bottle ID on the Sample Submission Form

Figure 9-RAD must be filled out for each radiochemistry sample. Fill out the form completely and neatly! If there is a problem with the sample, KHEL personnel will call the sample collector and try to resolve it. However, if they are unable to make contact the sample may be rejected and the system will have to re-collect the sample.

To be Completed by the Sample Collector	
Collected By:	_____
Date and Time Collected:	_____
Collector's Daytime Phone Number:	_____

Figure 9-RAD. Collected Sample Information on the Sample Submission Form

Figure 10-RAD has been highlighted to point out specific areas on the form.

The part highlighted in yellow can be answered with results from a litmus paper test. A couple of ideas for obtaining litmus paper for testing water pH is to shop online or at a local store that sells items for pet fish. Before or after collecting the sample, test the pH of the water coming out of the sampling tap and record results on the line provided. If unable to perform a pH test, then leave this line blank.

Highlighted in green is the question about disinfection for which “Yes,” is the answer. KHEL also analyzes non-compliance special study samples for which the answer to this question is sometimes “No.” **Radionuclide compliance samples are from finished water** which has already received disinfectant.

The part highlighted in pink is for KHEL personnel use.

Sample pH _____	Has sample been disinfected(e.g.Chlorine)? Yes ___ No ___
If you have questions about this sample please call the Radiochemistry Lab at (785) 296-1620.	
Received by: _____	

Figure 10-RAD. Collected Sample pH and Disinfection Information
on the Sample Submission Form

COLLECTING AND SHIPPING THE RADIONUCLIDE SAMPLE

The sample kit will specify a time frame in which to collect the sample. Collecting within the appointed time frame is to the system’s benefit and has been coordinated with the system’s compliance monitoring due date.

Collecting the radionuclide sample

Read through the sample collection instructions before collecting. For questions or concerns about the sample collection process, call KHEL at 785-296-1620 for assistance.

Radionuclide compliance monitoring samples are collected from finished water. Listed on the sample submission form is the POE site ID number where the sample needs to be collected. At the sample collection site there should be a KDHE ID tag with a number that matches the ID number on the form.

A tip to guard against leaking: after collecting the sample, wrap teflon tape around the threads on the jug’s spout, twist the cap on to close, then wrap the outside of the cap with tape. Place the jug into a plastic bag and tie shut. Tape and plastic bags are not included in the sample kit. This

tip to guard against leaks is not part of the official sample collection protocol, but it is good advice from the KHEL.

Shipping the radionuclide sample

As soon as possible after collecting the sample, place the container and the completed sample submission form into the shipping box and tape shut. Secure the blue return shipping label to the package.

If the sample container leaks it could arrive at KHEL empty or with not enough sample left to analyze. Many couriers will consider a wet package undeliverable and will discard it. Either of these scenarios would require the system to re-collect the sample.

SUMMARY OF RADIONUCLIDES SAMPLING

- Upon receipt of the sample kit, open and review the appointed sample collection date.
- Check that bottle ID numbers, KHEL account number, and collection site ID numbers are correct.
- Follow the sample collection instructions that are on the sample submission form.
- Fill out the sample submission form completely and neatly.
- Include the completed sample submission form in the package with the sample, and ship as soon as possible after collection.
- Calling KDHE with questions or concerns you may have is highly encouraged.

For questions about your radionuclide sample kit or the sample collection process, call KHEL at 785-296-1620.

For questions about your radionuclide compliance or a compliance monitoring schedule, call KDHE's Bureau of Water, Public Water Supply Section at 785-368-8336.